Bacteriological And Biochemical Studies On Pekin Duckling Infected With *Pasteurella Miltocida* With Trial For Treatment

Allam HH[1], Zaki R, H[2], Aly Salah ABS[3] and Nagwa A Bahar[4]
(Poultry[1] and Biochemistry [2,3 and 4] Department)
Animal Health Research Institute (Zagazig [1 and 2], Kafer El Sheik[3] and Ismailia[4] Branches)

ABSTRACT

Samples from cloacal swabs, liver, heart, lungs, trachea, spleen and nasal exudate were collected from 150 pekin duckling aging 1-30 days (75 apparentaly healthy 35 diseased and 40 freshly dead) for bacteriological examination. Out of 150 examined sample 43 (28.67 %) were positive for *Pasturalla milt.* (*P. milt.*) distributed as 5 from apparentally healthy, 13 from diseased and 25 from dead duckling. Antibiogram study of isolates revealed that florfenicol was the highest drug effective against *P. milt* .

A total of 160, one day old pekin duckling (80 healthy & 80 experimantally infected with *P milt.*) were divided into 4 equal groups (40 birds each), the 1st group consisted of healthy duckling (control), the 2nd group inculded healthy duckling treated with florfenicol (30mg/kg bwt.) in drinking water for 5 days, the 3rd group inculded infected non treated and the 4th group inculded infected duckling treated with florfenicol (same dose, period and rout of administration). In the four groups the hemato-biochemical changes were studied.

The results revealed that healthy pekin duckling treated with florfenicol displayed significant rise in body weight, leukocytic count, lymphocytes, significant decrease in heterophils and insignificant increase in monocytes, eosinophils, basophils, total proteins, albumin, globulins, A/G ratio, AST, ALT, ALP, uric acid and creatinine.

Pasteurellosis in duckling induce anorexia depression, ruffled feather, coughing, diarrhea, mortality rate 30%, rise respiratory rate, monocytes, total, β, γ globulin, AST, ALP, uric acid, creatinine levels and significant decrease in weight gain, heterophils, albumin, α globulin, A/G ratio, insignificant decrease in leukocyte, lymphocyts, esinophils, total protein and insignificant rise ALT

Florofenicol residue in examined liver and kidney in both healthy and diseased duckling treated with florofenicol were high at 1st day post treatment, very low at 6th day and completely disappeared from examined samples at 9th day post treatment The highest levels of florofenicol residues were recorded in the kidneys then liver.

Duckling suffering from pasteurlosis and treated with florfenicol showed no clinical signs, decrease mortality rate to 5%, reduced re-isolated P. milt and Improve hemato-biochemical parameters.

It could be conclude that florfenicol is effective against P. milt in duckling

INTRODUCTION

Ducks are relatively resistant to some diseases *(1)*. In duck farms in Egypt, inadequat management, diagnosis, control and prevention of various infectious diseases play a vital role in high morbidity and mortality *(2)*. Pasteurellosis is a contagious disease in ducks caused by *p. milt (3)* which is associated with poor sanitation *(4)*. Acute form occurs as septicemia of sudden onset with high mortality

(5). While chronic form results in localization of infection in wattles, respiratory passages and joints *(6)*. Symptoms of pasterulosis include aneroxia, mucous discharge from mouth, diarrhea and labored breathing *(7)*.

Florfenicol is a novel broad spectrum bacteriostatic antibiotic belonging to family includes also thiamphenicol and chloramphenicol *(8)*. It has fluorine atom instead of hydroxyl group located at C-3 in the structure of chloramphenicol and thiamphenicol *(9)*. Florfenicol inhibits protein synthesis *(10)*, it has greater activity than chloramphenicol and thiamphenicol against pasteurella *(11)*.

The aim of this study was to evaluate effects of pasteurellosis on immunolo- gical and biochemical parameters in duckling with trial of treatment.

MATERIAL AND METHODS

Isolation and identification

A total of 150 samples (35 diseased, 40 freshly dead, 75 healthy pekin duckling) 1-30 days old were obtained from different private farms at Sharkia Provence. All samples were collected aseptically from cloacal swabs, liver, heart, lungs, trachea, spleen and nasal exudate and inoculated into nutrient broth aerobically at 37^0C over night, subculturing on nutrient agar and MacConkey agar plates was performed for 24h at 37^0C, suspected colonies were identified *(12)*. Pathogenicity and virulence of isolated *P milt* to mice were determined *(13)*.

Antibiotic sensitivity test

Susceptibility of *P. milt* to different chemotherapeutic agents was tested by disc diffusion method *(14)*.

Drugs

Florfenicol (Aviflor ,100 mg/ml) water soluble formulation for oral use was supplied by Avico (Jordan).

Experimental duckling

A total of 160, one day old pekin duckling were reared under hygienic conditions, Fed on balanced commercial starter ration free from antibacterial agent and given water ad-libitum,

Pasterulla miltocida infection

On day 30 of age 80 duckling were I/M inoculated with 0.2 ml/bird of 48 hr broth culture of *P. milt*. containing ($3x10^8$CFU) viable organism *(15)*.

Experimental design

Duckling were divided into 4 equal groups (40 ducks each), 1st group inculded non-infected non-treated duckling (control group), 2nd group inculded non-infected duckling treated with florfenicol (30 mg/kg bwt) in drinking water for 5 successive day. The 3rdgroup inculded infected non treated duckling and the 4th group inculded infected duckling treated with florfenicol (same dose, period and rout of administration). Treatment started at age of 32 day.

Body weight

From each group 5 ducklings were weighted individually at the start of the experiment and at the 1st day post treatment and consumed diets were record the calculation of weight gain and feed conversion rate.

Sampling

At 1st , 7th &15th days post treatment two blood samples from all duckling were taken, the 1st sample was taken on tube contain EDTA to estimate leukogram *(16)*. The 2ndone was taken to obtain clear serum to estimating of the total protein *(17)*. Protein fraction was performed using cellulose acetate electrophoresis *(18)*. (AST–ALT) *(19)* ALP *(20)* uric acid *(21)* creatinine *(22)*.

Re-isolation of *Pasterulla milt*

Samples were taken aseptically from cloacal, nasal exudates and internal organs from all groups post treatment then inoculated into nutrient broth aerobically at 37^0C over

night followed by subculturing on nutrient agar and MacConkey agar plates for 24h at 37^0C, suspected colonies were identified *(12)*. Pathogenicity and virulence of isolated *P milt* to mice were determined *(13)*.

Drug residue

Five duckling from both healthy treated and infected treated ducklings were slaughtered at 2^{nd} and 3^{rd} days during treatment and at 1^{st}, 3^{rd}, 6^{th}& 9^{th} days post treatment. Levels of florofenicol residues in liver and kidneys were determined by microbiological assay technique *(23)* using *Baceillus subtilis* as test organism

Statistal Analysis: Obtained data were statistically analyzed using T test *(24)*.

RESULTS AND DISCUSSION

Bacteriological examination revealed that 43 samples (28.67%) out of 150 collected samples to be positive for *P. milt* (5 from healthy, 13 from diseased and 25 from freshly dead duckling). *P. milt* was isolated from diseased Muscovy ducks in percentage of 25% *(25)*. Pasteurellosis in duckling induce clinical sign as depression, anorexia, ruffled feathers, increase respiratory rate, sneezing, coughing, diarrhea, mortality rate 30% and decrease body weight. Typical signs were previously recorded in duckling *(26)*.

The obtained results revealed that, use florfenicol in healthy ducks displayed a significant increase in body weight gain and decrease feed conversion rate in comparasion to healthy duckling , meanwhile, pasteurellosis induce significant decrease in body weight gain and feed conversion rate in comparasion to healthy duckling. The antimicrobials drugs induce rise in growth rate through inhibiting pathogenic organisms *(27)*. Pasteurellosis in duckling induce significant decrease in body weight gain and increase in feed conversion rate *(28)*.

Antibiogram revealed that psterulla multocida was sensetive to florfenicol and ceftiofur sodium followed by gentamycin, spectinomycin and not sensitive to colistin. Same reports showed that *P. milt* were very sensitive to florfenicol *(25)*. Other report that *P. milt were resistant* to colistin *(29)*.

Florfenicol induce significant leukocytosis, lymphocytosis, significant decrease in heterophils, insignificant rise in monocytes, eosinophils and basophils. Pasteurellosis in duckling showed insignificant decrease in leukocytic count, lymphocyts, esinophil, significant decrease in heterophils and monocytosis. Same results were previously reported in healthy rats received florfenicol for 6 day *(30)*. Our result agreed with those obtained in broiler chicken infected with *P. milt (31)*. Pasteurellosis in duckling induce insignificant reduction in lymphocyts beside significant decrease in heterophils and monocytosis *(26)*.

In the current work, florfenicol displayed insignificant increase in total proteins, albumin globulins and A/G ratio. Pasteurellosis in duckling show insignificant hypoproteinemia, significant rise in total, β, γ globulin, significant hypoalbum- inemia, α globulin and A/G ratio. Same results were recorded in healthy broiler chicken treated with florfenicol *(32-33)*. Changes in protein profile in duckling suffering from pasteurellosis agreed with *(34)* in duckling and *(35)* in chicken. Reduction in albumin in duckling infected with *P. milt* may be due to effect of bacteria and its toxin in liver (sole of albumin synthesis) *(36)*. Rise in β and γ globulin indicate activation of immune system due to infection *(37)*. Reduction in globulin was recorded in infected duckling indicating immune defense mechanism against infection and enhanced immunoglobulin synthesis *(38)*.

Healthy duckling treated with florfenicol revealed insignificant increase in AST, ALT ALP, uric acid and creatinine. Pasteurellosis in duckling induce significant rise in AST, ALP, uric acid and creatinine levels beside insignificant rise ALT. Same results were obtained in healthy chickens treated with

florfenicol *(39)*. Florfenicol had no adverse effects on liver and kidney functions *(40)*. Same changes in liver enzymes, uric acid and creatinine in duckling suffering from pasteurellosis were previously recorded *(41)*. Rise in liver enzyme activities may be due to liver damage by infectious agent and its toxins *(42)*. Elevation in uric acid and creatinine could be due to effect *P. milt* or its toxin on kidney *(43)*.

The obtained results revealed that florofenicol residues in liver and kidney in both healthy and diseased duckling treated with florofenicol were high at 1st day of clearance period and completely disappeared at 9th days of clearance period. High residue of florfenicol was found in kidney followed by liver. Florofenicol residues in liver and kidney disappeared at 8 day of clearance period *(44,45)*. Florofenicol residues in kidney more than in liver *(46 ,47)*.

Our findings revealed that duckling infected with *P. milt.* and treated with florfenicol showed disappearance of clinical signs, reduced mortality rate (5%), ameliorate the adverse effects and return leukogram and biochemical parameters to normal levels. This finding was previously recorded *(26)* which showed that duck pasteurellosis treated with florfenicol induce improvement of clinical signs and hemato- biochemical parameters. This improvement may be due to antimicrobial effect of florfenicol *(27)*.

From the obtained results in the current study, it could be conclude that florfenicol is effective against *P. milt* in duckling

Table 1. Incidence of the isolated P. *milt* from ducks

Source of sample	Total No. of sample	+ve samples		-ve samples	
		No.	%	No.	%
Apparently Healthy duckling	75	5	6.67	70	93.33
Disased duckling	35	13	37.14	22	62.86
Freshly dead duckling	40	25	62.50	15	37.50
Total	150	43	28.67	107	71.33

Table 2. Incidence of the isolated P. milt from internal organ in ducks

Source of sample	Healthy			Disased			dead		
	Total sample	+ve sample		Total sample	+ve sample		Total sample	+ve sample	
		No	%		No	%		No	%
Tracheal swab	35	3	8.57	5	2	40	8	4	50
Cloacal swabs	40	2	5	3	1	33.33	6	3	50
Liver	-	-	-	9	2	22.22	7	4	57.14
Heart	-	-	-	6	2	33.33	3	3	100
Lung	-	-	-	3	2	66.67	9	6	66.67
spleen	-	-	-	5	1	20	7	5	71.43
nasal exudates	-	-	-	4	1	25	-	-	-
Total	75	5	6.67	35	13	37.14	40	25	62.5

Table 3. Effect of P. *milt* on mortality rate and reisolated p. Maltocida of duckling

Parameters / Group	Total No	Clinical Signs	Mortality rate		Reisolation	
			No	%	No	%
Healthy non treated (Control)	40	00	00	00	00	00
Healthy Florofenicol Treated	40	00	00	00	00	00
Diseased non treated	40	38	12	30	40/40	100
Diseased treated	40	2	3	5	3/40	7.5

Table 4. In vitro susceptibility p. *milt* to some commonly used antibiotics

Antimicrobial agent	Disk polancy	Inhibition zone diameters(mm)	Sensitive
Florphencol	30ug	25	+++
Ceftiofur sodium	30ug	25	+++
Sulfaquanoxaline	30ug	24	+++
Gentamycin	10ug	23	+++
Spectinomycin	10ug	22	++
Colistine	30ug	16	R

+++ = high sensitive ++ = sensitive R = Resistance

Table 5. Effect of *p. milt* and florofenicol on body weight gain (gm) and feed conversion rate in duckling (n=5)

Parameter	Control group	Healthy treated	Diseased Non treated	Diseased treated
Weight at 30th day of age	410.32±1.49	418.58±1.37	405.08±1.40	415.41±1.86
Body weight at 1st day PT	480.49±5.38	502.04±9.80*	464.22±3.50*	489.55±15.94
Weight gain	69.45± 1.98	83.46±3.97*	59.14± 2.13*	74.14± 1.85
Feed consumption	238.59	243.39	217.43	228.53
Feed consumption rate	3.45	2.92	3.68	3.08

*Significant at $P \leq 0.05$ PT= post treatment

Table 6. Effect of P. *milt* and florofenicol on leukogram in duckling (n=5)

Parameter		Control group	Healthy florofenicol treated	Diseased			
				Non Treated	Day post treatment		
					1st	7th	15th
TLC($X10^3$)		15.87±0.50	17.31±0.27*	14.90±0.15*	15.06±0.92	15.63±0.99	15.75±0.65
Differential count($X10^3$)	Heterophils	4.12±0.85	2.15±0.19*	2.59±0.37*	3.07±0.40*	3.84±0.63	4.08±0.49
	Lymphocytes	8.09±0.64	10.90±0.98*	7.40±0.89	7.51±0.78	7.77±0.56	8.02±0.60
	Eosinophils	1.34±0.35	1.57±0.41	1.07±0.55	1.10±0.70	1.25±0.69	1.30±0.50
	Basophils	1.17±0.22	1.33±0.35	1.16±0.32	1.18±0.62	1.18±0.71	1.15±0.62
	Monocyte	1.15±0.30	1.36±0.34	2.68±0.57*	2.20±0.61*	1.59±0.54	1.20±0.93

*Significant at $P \leq 0.05$

Table 7. Effect of p. *milt* and florfenicol on protein profile in duckling (n=5)

Parameter		Control group	Healthy florofenicol treated	Diseased			
				Non Treated	Day post treatment		
					1st	7th	15th
T. protein (g/dl)		6.09±0.10	6.87±0.14	5.95±0.18	6.03±0.22	6.08±0.15	6.13±0.19
Albumin (g/dl)		3.83±0.42	4.35±0.60	3.13±0.28*	3.41±0.16*	3.60±0.13	3.79±0.15
Globulin (g/dl)	α	0.70±0.19	0.77±0.13	0.49±0.10*	0.54±0.08*	0.68±0.17	0.73±0.21
	β	0.83±0.09	0.95±0.16	1.25±0.12*	1.20±0.07*	1.00±0.12	0.86±0.17
	γ	0.73±0.10	0.80±0.18	1.08±0.11*	0.88±0.09*	0.80±0.14	0.75±0.15
	Total	2.26±0.37	2.52±0.91	2.82±0.14*	2.62±0.19*	2.48±0.17	2.34±0.18
A/G Ratio		1.69±0.15	1.72±0.42	1.12±0.20*	1.30±0.19*	1.45±0.25	1.62±0.33

*Significant at $P \leq 0.05$

Table 8. Effect of p *milt* and florfenicol on liver enzymes and kidney function in duckling (n=5)

Parameter	Control group	Healthy florofenicol treated	Diseased			
			Non Treated	Day post treatment		
				1st	7th	15th
AST((④/L)	30.28±1.50	32.04±1.78	36.04±1.41*	34.78±1.17*	33.20±1.44	31.08±1.48
ALT((④/L)	24.05±1.42	25.34±1.89	29.13±1.89	27.85±1.47	26.30±1.60	24.97±1.93
ALP (I.U/ml)	17.09±1.12	19.21±1.96	21.87±1.04*	21.03±1.10*	19.14±1.79	18.21±1.43
Urea(mg/dL)	4.92±1.22	5.58±1.60	7.88±1.10*	7.61±1.03*	6.05±1.02*	5.12±1.40
Creatinine(mg/dL)	1.14 ± 0.11	1.25 ± 0.21	1.69 ± 0.17*	1.54 ± 0.09*	1.34 ±0.13	1.20 ±0.15

*Significant at $P \leq 0.05$

Table 9. Florfenicol residues (µg/gm) in duckling liver and kidney

	Clearance period							
	Healthy duckling with florfenicol (days)				Diseased duckling with florfenicol (days)			
	1st	3rd	6th	9th	1st	3rd	6th	9th
Kidney	6.72±0.21	2.15±0.11	0.31±0.18	00	6.41±0.14	2.07±0.18	0.19±0.07	00
Liver	4.07±0.19	1.17 ± 0.2	0.25±0.15	00	4.12 ± 0.2	1.3 ± 0.10	0.10 ±0.06	00

REFERENCES

1.Mohan K and Kumar P (2008): Pasteurellosis in a Duck Vet World 1(12)48-56.

2.Ahmed Mona A, Fatma M Yousseff and Amina A (2012): Clinicopathological studies on bacterial respiratory diseases in ducks. Zag. Vet .J. 40(4) 46 -57.

3.Jonas M, Morishta T and Jhja J (2001): characterization of 8 *P milt* isolates from avian cholera outbreak in Indonesia. Avian Dis.45:34-42.

4.Boglárka S, Krisztián B and Tibor M (2010): Characterization of the ptfA gene of avian Pasteurella milt strains by allele-specific polymerase chain reaction. J. of Vet. Diagnostic Investigation Vol. 22 Issue 4, 607-610.

5.Ganti A (2003): Avian Pasterullosis. In Textbook of Vet. Pathology, 7th ed. Satish Kumar Jain, CBS Publishers and Distributors, New Delhi, p. 612.

6.Baki A Dewan I and Mondal M (1993): pasteurellosis in duck Prog Agr 27(4) 33-34

7.Carter G and De Alws M (1989): Hemorrhagic septicaemia. In: Pasteurellosis, Adlam, C and Rutter, J(Ed) London: Academic Press, 13–160.

8.Kobal S (2004): Florfenicol and use in Vet. Med.Vet. Novice (30) 4, 12-15.

9.Sams R. (1994): Florfenicol: chemistry and metabolism of a novel broad spectrum antibiotic.In: Proc. of VIII World Buiatrics Conf. Bolo, Italy, 13-17.

10.Cannon M, Harford S, Harford S and Davies J (1990): Acomparative study on the inhibitory action of chloramphenicol, thimphenicol and some fluorinated derivatives. J.Antimic. Chem.26:307-317.

11. Soback S, Paape M and Varma K (1995): Florfenicol pharmacokinetic in lactating cows after I/V, I/M and intramammary administrations. J. Vet. Pharma. Therap., 18 (6): 413-417.

12.Cruickshank R, Duguid J, Marmion B and Swain R (1975): Medical Microbiology. (2) Practice of Med. Microbiology. 12thEd. Churchill Livingstone, London

13.Okerman L, Spanoghe L and De Bruycker R (1979) : expermental infection of mice with *p. milt* strain isolated from rabbits.J. Comp. Path.89:51-55.

14.Quinn P, Markery B , Carter M , Donnelly W and Leonard F (2002): Veterinary Microbiology and Microbial Diseases. Block well Sci Ltd.

15.Baron E Petrson L and fingld S (1992) Diagnostic Microbiology 8thEd Mosb17.

16.Jain N (2000): Schalm Veterinary Haematology, 8thEd Lea& Philadelphia.

17.Doumas B, Certor R, Peers T and Schafler R (1981): Acandidate reference method for determination of total protein in serum.Clin.Chem. (27)1642 -1647

18.Henry R Cannon D and Winkelman J (1974): Clinical Chemistry: Principals and techniques p 437 – 440, Harper and Row, Hagerstown.

19.Reitman S and Frankel S (1957): Colorimetric determination of SGot and SGpt activity. Am. J. Clin. Path. (28) 56 – 59.

20.John D (1982): Clinical Lab. Method for Determination of Alkaline Phosphates 9th Ed. 580-581.

21.Coalombe J and Faurean l (1963): A new simple method for colorimetric determination of urea. Clin. Chem. (9)102-108.

22.Husdan H and Roporpot A (1968): Estimation of creatinine.Clin Chem (14)22

23. Arret B Johnson A and Kirshboum A (1971): outline for microbiological assay of antibiotics, 2nd revision. Pharma. Sci. 60:1689-1694.

24.Petrie A and Watson P (1999): Statistics for Veterinary and Animal Science 1st Ed. 90-99, the Blackwell Science LTd, United Kingdom.

25.Radad K and Fatma A Mostafa (2006): Studies on pasteurella milt and other bacterial pathogens associated with some problems in duck farms in Assuit Governorate. Assuit Vet. Med. J., 52 (108): 336-353.

26.Koshaik M, Abdel-Aziz S, Abdel-Alim Fand Kamel M (2008): Treatment of Pasteurellosis in Ducks. 9th Vet. Med. Zag. Conf. 861-872.

27. Abdel Aziz M (2002): Hand Book of Veterinary Pharmacology 5th Ed. Faculty of Vet. Med, Zag Uni.

28.El-Banna H. (1998): Pharmacokinetics of florfenicol in normal and Pasteurella infection Muscovy ducks. Brit. Poult. Sci. 33 (4): 492 – 496.

29.Hornish E and Susan F (2002): Cephalosporins in veterinary medicine: Ceftiofur use in food animals. Current Topics in Med. Chem. 2 (7): 717 – 731.

30.Abdel-Moneim A and El-Gendy A (1998): Comparative biochemical and haematological effects of florfenicol and chloramphenicol in albino rats. J. Egypt. Gen. Soc. Zool., 27 (A): 151-169

31.Swapnil S, Madhu S and Yamin V (2011): Effect of Mannan Oligosaccharide on Pathology of Fowl Cholera in Broiler. Asian J. of Poul Sci, 5:86.

32. Zainab F (2006): efficacy of fosfomycin and florfenicol in chickens. M Sc. Thesis Faculty of vet Medicine, Zagazig University.

33.Hend M (2007): Efficacy of some antimicrobials in chickens. M Sc. Thesis Fac. of vet Med., Zag. Uni.

34.Abdullah O, Tawfik M and Selim M (2001): Evaluation of concurrent use of ceftiofur sodium and isoflupredone acetate for treatment of pasteurello- sis in ducklings at Sharkia province. J. Egypt Vet. Med. Ass. 61(4): 321 – 337.

35.Abozed A Omima (1987): Aiver function tests in relation to some bacterial diseases in chicken.MVSc. Thesis Fac. of Vet. Med. Zag Uni.

36.Kaneko J (1980): Clinical Biochemistry of Domestic Animals. Academic Press. Inc, 4th Ed. New York, London, Tokyo. pp. 365 – 391.

37.Butler E (1983): "Plasma proteins." In: Physiology and Biochemistry of the Domestic Fowl, edited by Freeman. B. M .Academic Press.

38.Abd-Alla, A (1997): Clinicopathological studies on the effect of Pasteurella milt in chicken and ducks. Egypt. J Comp Path& Clin. Path 10 (2) 49-59.

39. ***Hamed E (2005):***pharmacological studies on florfenicol and its interaction with streptomycin in chickens MVSc Thesis Faculty of Vet. Med. Zag. Uni.

40. ***Ali A and Youssef A (2003):*** Bacteriological studies and biochemical parameters of respiratory infection in ostriches.Vet. Med. J. Giza, 51(2)89– 90.

41. ***Campbell T and Coles E (1986):*** Avian Clin. Pathol. In Vet. Clin. Pathol. 4th Ed. W.B.Saunders Company Philadelphia, London and Toronto.

42. ***Halliwell W (1981):*** Serum chemistry profiles in health and disease of birds of prey. In Recent advances in the study of rapter disease, edited by cooper. J and Greenwood A Chiron Publication. Lit. West. Yorkshire England.

43. ***EL-Sayed E, EL-Azzawy H and Gheith S (2000):*** "Effect of ceftiofur sodium on ducks infected with Pasteurella milt. Egy. J. Agric. Res78 (1)

44. ***El- Banna H, Zaghlol A and Rehab M (2007):*** Efficacy and tissue reside depletion of florofenicol (water soluble formulation) in healthy and E. coli infected broiler chickens. Res. J. of Biological Sci. 2(3) 319-325.

45. ***Samah K, Eslam H and Ola H (2012):*** Residue Withdrawal of Florfenicol from Serum and Edible Tissues of Broiler Chickens J. of American Sci; 8(12).

46. ***Afifi N and El Sooud K (1997):*** concentration and pharmacokinetics of florofenicol in broiler chickens.Br. Poul. Sci., 38:425-428.

47. ***El-Banna H and El-Zorba H (2011):*** Pharmacokinetics of florfenicol (Water soluble formulation) in healthy and Pasteurella in fe1cted broiler. World Rural Observations 2011, 3(1), 13- 19.

الملخص العربى

دراسات بكتريولوجيه بيوكيميائيه على البط البيكينى المصاب معمليا بالباستريلا مع محاوله العلاج

د.حسام حسن علام[١]، رضا حسن ذكى[٢] ، على صلاح بيومى[٣] ، نجوى عباس بحر[٤]

أقسام (الدواجن[١] الكيمياء[٢-٣ و ٤]) معهد بحوث صحة الحيوان (فرع الزقازيق[١-٢]) كفر الشيخ[٣] واسماعليه[٤])

تم تجميع عدد ١٥٠ عينه من الأعضاء الداخلية لبط بيكينى عمر ١ حتى شهر (٧٥ بطه سليمه ظاهريا, ٣٥ بطه يظهر عليها أعراض متمثله في الإسهال والكساح و ٤٠ بطه نافقه حديثا) للفحص البكتريولوجي. وبعد الفحص البكتريولوجى وجد ميكروب الباستريلا مالتوسيدا في عدد ٤٣ عينه (٢٨,٦٧%) من ١٥٠ عينه تم فحصها موزعه كالاتى (٥ بطه سليمة, ١٣ بطه مريضه و٢٥ بطه نافقه. وبعمل اختبار الحساسية لتلك المعزولات وجد أن الفلورفينيكول أكثر المضادات الحيوية المستخدمة تأثيرا على البستريلا مالتوسيدا المعزوله عن باقي المضادات الحيوية المستخدمه.

في هذه الدراسة تم أستخدم عدد ١٦٠ من البط البيكينى عمر يوم واحد(٨٠ بطه سليمة و ٨٠ بطه مصابه اصابه اصطناعية بالياستريلا مالتوسيدا. قسم البط إلى أربع مجموعات متساوية. المجموعة الأولى بط سليم

ظاهريا واكلينكيا ولم يعالج (مجموعة ضابطة) والمجموعة الثانية بط سليم ظاهريا واكلينكيا وتم علاجه باستخدام الفلوروفينيكول بجرعة ٣٠مجم/كجم من وزن الجسم لمده ٥ أيام متتالية, المجموعه الثالثة بط مصاب اصابه اصطناعية بالباستريلا مالتوسيدا ولم يتم علاجه إما المجموعه الرابعة بط مصاب اصابه اصطناعية بالباستريلا مالتوسيدا ويتم علاجه باستخدام الفلوروفينيكول بنفس الجرعة والمده السابقه. يتم دراسة تأثير الباستريلا على نسبه الوفيات ووزن الجسم. يتم اخذ عينات دم من البط في كل المجموعات وذلك لقياس بعض الوظائف المناعية والبيوكيميائيه. يتم ذبح عدد ٥ بطه عند فترات مختلفة إثناء وبعد نهاية العلاج ويتم اخذ عينات من الكبد والكلى لتعيين بقايا الفلوروفينيكول.

وأظهرت النتائج أن البط السليم والمعالج بالجرعة العلاجيه من الفلوروفينيكول أدى إلى حدوث زيادة معنوية في وزن الجسم, العدد الكلى لكرات الدم البيضاء, الخلايا الليمفاوية ونقص معنوي في خلايا الهيتروفيل بجانب زياده غير معنويه في معدل التحويل الغذائي الخلايا الملتهمة الكبيرة, الخلايا القاعدية, الخلايا الحامضيه ,البروتين الكلى , الزلال , النسبه بين الزلال والجلوبيولين, حمض اليوريك والكرياتينين AST, ALT, ALP. حمض اليوريك والكرياتينين

البط المصاب اصابه اصطناعية بالباستريلا مالتوسيدا ظهرت عليها أعراض مرضيه تتمثل في حدوث أصوات غير طبيعية والامتناع عن الأكل والإسهالات بجميع الألوان وارتفاع نسبة النافق ٣٠% و وجود زياده معنويه في عدد الخلايا الملتهمة الكبيرة الجلوبيولين الكلى والبيتا والجاما جلوبيولين, AST, ALP,حمض اليوريك والكرياتينين بجانب نقص معنوي وزن الجسم, خلايا الهيتيروفيل, الزلال ,الفا حلوبيولين ,النسبه بين الزلال والجلوبيولين ونقص غير معنوي في في معدل التحويل الغذائى العدد الكلى لكرات الدم البيضاء, الخلايا الليمفاويه, الخلايا الحامضيه, البروتين الكلى وزيادة غير معنوية فيALT

وقد دلت نتائج الدراسة على أن الفلوروفينيكول له بقايا في الأنسجة اثنا وبعد العلاج وكان أعلى منسوب لبقايا الفلوروفينيكول في الكلى يلها الكبد , ولكن الفلوروفينيكول اختفي من الأنسجة بعد مرور ٩ يوم من الحقن

من كل ما سبق نلاحظ أن أستخدام الفلوروفينيكول بالجرعة العلاجية لة تأثير فعال في علاج الإصابة بالباستريلا وأدى إلى اختفاء الأعراض الظاهرية وأدي إلي عودة هذه الوظائف إلي المستوى الطبيعي.